

**A Sustainable Strategic Broadband Plan  
For Accelerating Arizona's  
Economic Recovery and Growth  
and  
Transformation of Education and Healthcare**

**Presented September 29, 2011**

**to**

**Arizona Broadband Development Council  
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**ASET**

## Broadband is Not an Inalienable Right

Neither are:

- Highways
- Electricity
- Clean water

Yet the development of these *essential infrastructures* has proven to be fundamental to our country's economic growth, competitiveness and well-being



## The New Essential

# Broadband Internet Capacity is the *New* Essential Infrastructure

- It is required for:
  - Improving education outcomes while lowering costs
  - Improving healthcare delivery while lowering costs
  - Attracting large businesses and growing small ones
  - Enhancing government services while lowering costs
  - Better public safety and security
  - Increased quality of life for Arizona's citizens



# How Can Limited Government Accelerate Broadband Capacity and Related Economic Growth?

- **Leverage tax-payer owned assets to reduce the cost of private sector broadband build out in underserved areas**
  - **Leverage Public Rights-of-way**
    - Two highways for (nearly) the cost of one
    - Canals
    - Power lines
    - Railroads
- **Coordinate, simplify and accelerate broadband permitting and easements**
  - **Establish State Broadband Infrastructure Authority**
    - Create and enforce reasonable and uniform practices for broadband related permitting and easement processes
- **Leverage existing \$6.3 M Federal grant into sustainably funded mechanism for build-out acceleration**





# Arizona Broadband Development Council (proposed governance structure)

## Executive Steering Committee

Three Representatives from Each Stakeholder Representative Group

**Chair: State CIO**

**Citizens / Economic  
Development / Business**

7 Members:

- ✓ Health Care
- ✓ Education
- ✓ Manufacturing
- ✓ Urban Community
- ✓ Rural Community
- ✓ Commerce

**Broadband Provider  
Representatives**

7 Members:

- ✓ ILECS
- ✓ Cable Companies
- ✓ Cellular/LTE
- ✓ Fixed Wireless
- ✓ Infrastructure
- ✓ Urban / Rural

**Governments  
Representatives**

7 Members:

- ✓ State Agencies as  
Customers / Policy  
Makers
- ✓ Local Governments  
as Customers /  
Policy Makers

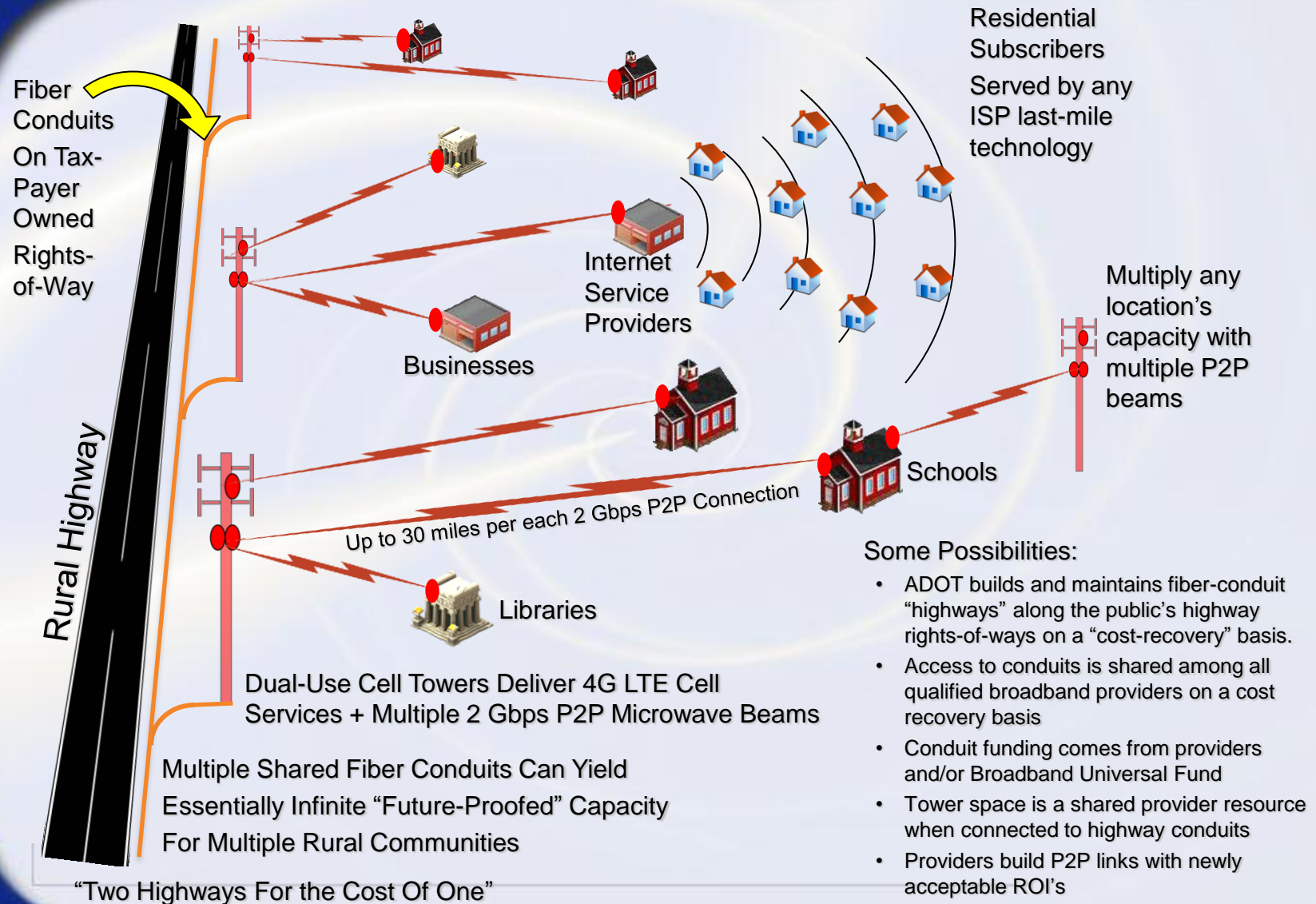


# Our Measures of Success for AZ Broadband Project

- ✓ **Non-metro broadband capacity increased by 20% by 2014 over current baseline**
- ✓ **Non-metro broadband adoption increased by 20% over current baseline by 2014**
- ✓ **Increased middle mile capacity (both gigabits/sec per mile and actual route miles) increased by 100% against current baseline by 2015**
- ✓ **Increase miles of public rights-of-way re-use by 200% by 2014**
- ✓ **Minimum of 1 gbps to every school in Arizona by 2015**
- ✓ **Sustainable Arizona Broadband Universal Service Fund established by 2012**



# The Tactical Possibilities (Incremental Scalability Is Everything)





# Why Fiber Conduit Capacity is Essentially Infinite (and why it matters)

- The most expensive aspect of fiber is the right-of-way (time and money)
- Next most expensive is digging a trench
- Conduit is just plastic pipe (inexpensive)
- Pulling fiber through existing conduit (relatively inexpensive)
- Multiple conduits in one trench mean providers don't interfere with one another's services
- Scalability:
  - Potential of approximately 14 thousand gigabits per second per single fiber strand (7 thousand 2-gigabit beams per strand)
  - up to 96+ strands per conduit channel
  - up to 8 channels per conduit
  - up to 8 conduits per trench
- One 8 conduit trench has the potential for fully redundant capacity of 43 million gigabits per second - one strand has the capacity of the entire wireless spectrum *or* 21 million 2 Gb/s beams per fiber route





# This Is What 2 Gigabits Can Support

- **A single 2-gigabit per second beam roughly translates to:**
  - **Twenty 100 megabit simultaneous Internet connections**
  - **Eighty 25 megabit simultaneous Internet connections**
  - **240 simultaneous different high-def large screen TV streams**
  - **480 simultaneous different iPad video streams**
  - **300 Internet/IPTV subscribers (based on busy hour models)**
- **Fifty 2-gigabit per second beams from just 5 cell towers translate to:**
  - **One thousand 100 megabit simultaneous Internet connections**
  - **Four thousand 25 megabit simultaneous Internet connections**
  - **Twelve thousand simultaneous different high-def TV streams**
  - **Twenty four thousand simultaneous iPad video streams**
  - **6,000 Internet/IPTV subscribers**



**Thank You**  
**[www.azbroadband.gov](http://www.azbroadband.gov)**



# Contact Information

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